

WE CLAIM:

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1. A structure comprising a layer of a polymer formed by the polymerization reaction with a single site catalyst.
 2. The article of claim 1 wherein said structure is a film.
 3. The film according to claim 2 wherein said layer comprises an ethylene polymer formed by the polymerization reaction with a single site catalyst.
 4. The film according to claim 2 wherein said layer comprises a propylene polymer formed by the polymerization reaction with a single site catalyst.
 5. The film according to claim 2 wherein said layer comprises a vinylidene chloride copolymer formed by the polymerization reaction with a single site catalyst.
 6. The film according to claim 2 wherein said layer comprises a polystyrene formed by the polymerization reaction with a single site catalyst.
 7. The film of claim 3 where said polymer is a copolymer of ethylene.
 8. The film of claim 7 where said polymer is a copolymer of ethylene and a C₃-C₂₀ alpha olefin.
 9. The film according to claims 1-8 wherein said single site catalyst is a metallocene.
 10. The film according to claim 8 wherein said alpha olefin is butene-1.
 11. The film according to claim 8 wherein said alpha olefin is hexene-1.
 12. The film according to claim 8 wherein said alpha olefin
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is 4-methyl pentene-1.

13. The film according to claim 8 wherein said alpha olefin is octene-1.
14. The film according to claim 8 wherein said polymeric layer is a blend of said copolymer of ethylene and an alpha olefin with a polyolefin.
15. The film according to claim 14 wherein said polyolefin is a low density polyethylene.
16. The film according to claim 14 wherein said polyolefin is a linear low density polyethylene.
17. The film according to claim 14 wherein said polyolefin is an ethylene vinyl acetate.
18. The film according to claim 14 wherein said polyolefin is a polymer of ethylene and an alpha olefin formed by the polymerization reaction with a single site catalyst.
19. The film according to claim 7-8 and 10-18 wherein said film is molecularly oriented.
20. The film according to claims 7-8 and 10-18 wherein said film is biaxially oriented.
21. The film according to claim 7-8 and 10-18 wherein said film is cross-linked.
22. The film according to claims 7-8 and 10-18 wherein said film is irradiated.
23. The film according to claims 7-8, and 10-18 further comprising a barrier layer.
24. The film according to claim 23 wherein said barrier layer is a copolymer of vinylidene chloride.

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polymerization reaction with a metallocene catalyst system.

38. The film according to claim 36 wherein said layer comprises a propylene polymer formed by the polymerization reaction with a metallocene catalyst system.
39. The film according to claim 36 wherein said layer comprises vinylidene chloride copolymer formed by the polymerization reaction with a metallocene catalyst system.
40. The film according to claim 36 wherein said layer comprises a polystyrene formed by the polymerization reaction with a metallocene catalyst system.
41. The film of claim 37 where said polymer is a copolymer of ethylene.
42. The film of claim 41 where said polymer is a copolymer of ethylene and a C₃-C₂₀ alpha olefin.
43. The film according to claim 42 wherein said alpha olefin is butene-1.
44. The film according to claim 42 wherein said alpha olefin is hexene-1.
45. The film according to claim 42 wherein said alpha olefin is 4-methyl pentene-1.
46. The film according to claim 42 wherein said alpha olefin is octene-1.
47. The film according to claim 42 wherein said polymeric

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polymerization reaction with a single site catalyst.

72. The film according to claim 71 where said polymer is a copolymer of ethylene and an alpha olefin.
73. The film according to claim 72 wherein said alpha olefin is hexene-1.
74. The film according to claim 72 wherein said alpha olefin is octene-1.
75. The film according to claim 73 or 74 wherein said polymer layer further includes a polybutylene.
76. The film according to claim 2 further comprising a layer of polyethylene terephthalate (PET) coated with a polyvinylidene chloride copolymer and an adhesive layer adhering said PET layer with said polymer layer.
77. The film according to claim 76 wherein said adhesive is low density polyethylene.
78. The film according to claim 76 wherein said film is formed by adhesive lamination.
79. The film according to claim 77 wherein said film is formed by extrusion lamination.
80. The film according to claim 2 wherein said film further comprises a second layer of an adhesive, a third or core layer of ethylene vinyl alcohol, a fourth layer of an adhesive and a fifth layer of nylon.
81. The film of claim 80 formed by means of the tubular water quench process.
82. The film according to claim 75 wherein said polymer layer further includes ethylene vinyl acetate.

83. A process for forming a structure comprising the steps of providing a layer of a polymer formed by the polymerization reaction with a single site catalyst.
84. The process according to claim 83 wherein said structure is a film.
85. The process according to claim 84 wherein said film comprises a layer of an ethylene polymer formed by the polymerization reaction with a single site catalyst.
86. The process according to claim 84 wherein said film comprises a layer of an ethylene polymer formed by the polymerization reaction with a metallocene catalyst system.
87. The process according to claims 85 or 86 wherein said film is molecularly oriented.
88. The process according to claim 87 wherein said film is biaxially oriented.
89. The process according to claim 88 wherein said film is irradiated.
90. The process according to claim 87 wherein said polymer is a copolymer of ethylene and an alpha olefin.
91. The film according to claim 24 wherein said film is biaxially oriented and irradiated.
92. The film according to claim 25 wherein said film is biaxially oriented and irradiated.
93. The film according to claim 26 wherein said film is biaxially oriented and irradiated.
94. The film according to claim 57 wherein said film is

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